

swallowed. He was not partial to entrails, and when they were thrown before him, he would put his feet upon them and relax immediately to his former stooping position. Before he commenced attacking his food, he would turn his head and look at it in a squinting way. His eyes were beautiful; indeed I do not know an animal which could vie with those of the king of the vultures; the purest pearl is not whiter than his iris. During rainy weather, and during a few days when he was sick, he withdrew his neck completely in the ruff; it even covered partly the head, leaving only the forehead and the beak out. He could not endure the full heat of the sun; he panted and showed every sign of being uncomfortable.

They are easily tamed if taken young. Mr. Glen in Demerara had a female bird which was so tame that it would lay itself before its master's feet; and its power of recognition was so great, that if it happened to be on the roof of the highest house when Mr. Glen walked by in the street, it would descend rapidly as an arrow, and lie down before his feet, as it had been accustomed to do. I saw a full-grown male bird which was brought from Surinam to Demerara; it was perfectly tame, and was ultimately sold to the master of an English merchantman for the enormous price of twenty pounds sterling.

The Indians when we travelled with them never failed to attract our attention to this bird when they discovered one soaring in the air. The Maconsis call it Cassana, the Wape-shanas Panaourou, the Warrows Wouraerepo.

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XXX.—On the *British Species of Lotus*. By CHARLES C. BABINGTON, M.A., F.L.S., F.G.S., &c.

THE British species of *Lotus* have now been the subject of controversy for many years, some most eminent botanists considering all our plants to be referable to only two (*corniculatus* and *angustissimus*), others supposing that they constitute four, if not five distinct species; but after a careful examination of numerous individuals, in their native localities, I have come to the conclusion that we possess four quite distinct

specific forms, namely, *L. corniculatus*, *major*, *angustissimus*, and *hispidus*. *L. tenuis* of 'Eng. Bot. Suppl.' (*L. decumbens*, Forst.) I am induced to refer as a variety to *L. corniculatus*, not having been able to discover any permanent characters, by which it may be distinguished from that plant. The form and structure of the pod appear to be amongst the most valuable characters in this genus, and the direction of the calycine segments, more particularly in the two first species, is deserving of great attention. The form of the leaves and the quantity of pubescence can only be considered as distinguishing varieties.

The specific characters which I have given may appear longer than is desirable, but I have found it impossible to condense them into a shorter form without omitting some characteristic points of the respective species. I have thought it unnecessary to load this paper with synonyms, since I do not believe that there is any confusion in that part of the subject.

#### LOTUS, Linn.

1. *L. corniculatus*, Linn. (Sp. Pl. 1092.) Vexilli ungue obovato transversim camerato, calycis apicibus ante anthesin conniventibus, laciniis e basi triangulari subulatis tubum suum subæquantibus et corolla multo brevioribus 2 superioribus apicibus convergentibus, leguminibus ex apice medio rostratis, capitulis 5—10-floris.

*α. vulgaris* (Koch.) glabriusculus vel sparse pilosus, caulibus ascendentibus, foliolis obovatis, stipulis ovatis inæqualibus. *Eng. Bot. t. 2090.*

*β. villosus* (Ser.) caulibus foliisque villosis. *L. villosus*, Thuill.

*γ. crassifolius* (Pers.) pilosus, caulibus humilibus stoloniferis, foliolis obovatis crassis, stipulis ovatis inæqualibus.

*δ. tenuis*, glaber vel sparse pilosus, caulibus filiformibus elongatis procumbentibus ascendentibusve, foliolis linearibus vel lineari-obovatis, stipulis semi-ovatis (calycis laciniis brevibus). *Eng. Bot. t. 2615.*

Root strong, slightly woody, perennial, in loose sandy soil, stoloniferous. Stems spreading, procumbent or ascending, hairy or glabrous, varying much in length, solid. Leaflets obovate, in  $\delta$  linear or linear-obovate, glabrous or slightly hairy,

in  $\beta$  clothed with long spreading hairs, strongly ciliated and fleshy in  $\gamma$ . Stipules ovate, slightly unequal, in  $\delta$  semi-ovate. Peduncles long. Bracteas obovate, slightly unequal. Pedicels very short, 5—10 together. Calyx segments about as long as their own tube, shorter in  $\gamma$ , equalling or slightly shorter than that of the corolla, their tips not diverging in the bud, the points of the two upper ones turned towards each other when the flower has expanded, the interstices between the segments rounded. Flowers yellow, claw of the standard much dilated and vaulted transversely. Pods linear, terete, straight, with a long setaceous deflexed rostrum springing exactly from the middle of the apex. Seeds numerous, oval, compressed, smooth.

Common throughout the British Islands, in fields, on hedge banks, and dry places.

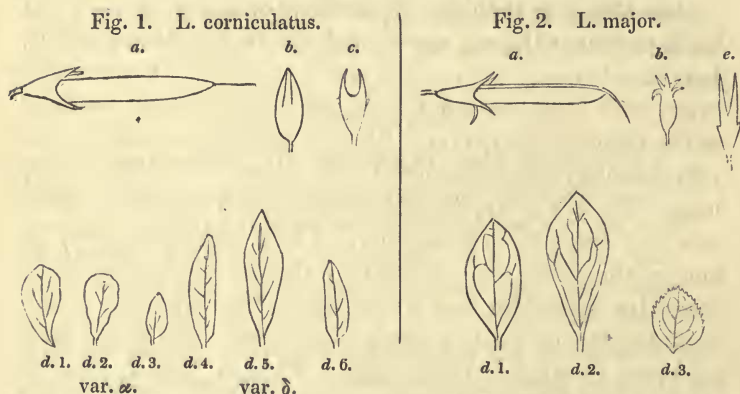


Fig. 1. *a.* Legume. *b.* Unopened bud, to show the direction of the tips of the calyx. *c.* The two upper segments of the calyx, to show the rounded space between them and their converging tips. *d.* 1. A lateral leaflet of var.  $\alpha$ . *d.* 2. The central leaflet of var.  $\alpha$ . *d.* 3. A stipule of var.  $\alpha$ . *d.* 4., *d.* 5., *d.* 6. The same parts respectively of var.  $\delta$ .

Fig. 2. The letters represent the corresponding parts, and all the drawings are about the natural size.

My friend Mr. Borrer, who has had frequent opportunities of studying *L. tenuis* in a living state, continues fully convinced that it is a truly distinct species, founding its characters upon the much shorter segments of the calyx and the elongated procumbent habit of the plant. I am sorry to be obliged to

differ from so excellent a botanist, but am of opinion that those are not sufficient differences upon which to found a species in this genus. The plant is more slender in all its parts, but I have not been able to detect any differences in structure except those mentioned in the description.

2. *L. major*, Scop. (*Carn.* 2. 86.) Vexilli ungue lineari, calycis apicibus ante anthesin in stella dispositis, laciniis e basi triangulari subulatis tubum suum subæquantibus et corolla multo brevioribus 2 superioribus divergentibus, leguminibus e sutura superiori rostratis, capitulis 8—12-floris, foliolis obovatis, stipulis ovato-rotundatis inæqualibus.

a. *vulgaris*, pilosus, caulibus erectiusculis. *Eng. Bot.* t. 2091.

β. *glabriusculus*, glaber, foliolorum stipularum bractearum sepalumque marginibus et nervis exceptis quæ longè ciliatæ sunt, caulibus erectis vel procumbentibus.

Root strong, perennial. Stems erect or ascending 1—3 feet high, clothed with long spreading hairs, in β glabrous, hollow. Leaflets obovate, obtuse, or pointed, covered both above and below with long scattered hairs, in β the hairs are confined to the margins and nerves. Stipules orbicular or short ovate, very minutely serrated, hairy like the leaves. Peduncles very long. Bractea ovate, the lateral one slightly unequal. Pedicels very short, 8—12 together. Calyx segments about as long as their own tube, longer than that of the corolla, acute, their tips spreading like a star before the expansion of the bud, the tips of the two upper ones never converging, their interstice forming an acute angle. Flowers yellow, claw of the standard linear and longitudinally vaulted. Pods linear, terete, straight, having a long setaceous straight rostrum springing from the upper suture. Seeds numerous, minute.

Frequent in damper places than the last, but sometimes found in very dry places.

The Rev. Dr. Beche, late Dean of Bristol, was I believe the first botanist who noticed the valuable character drawn from the stellate tips of the calyx, by which this species may at all times be distinguished from *L. corniculatus*. From laying too much stress upon the presence or absence of hairs as a specific distinction between these plants, several botanists

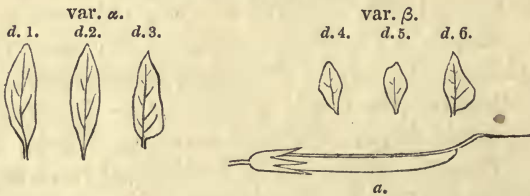
have been induced to consider the characters given above as variable, but there is nothing more uncertain in this genus than the quantity of the pubescence, unless it is the direction of the stems. The same species may be found glabrous, hairy, or even woolly, and its stems procumbent or erect. I need scarcely add, that the field is the right place for examining these plants, many of their most permanent differences vanishing when the plant has been pressed and dried for the Herbarium.

3. *L. angustissimus*, Linn. (Sp. Pl. 1090.) Vexilli ungue lineari calycibus ante anthesin rectis, laciniis subulatis tubum suum subæquantibus petalis brevioribus, leguminibus e sutura superiore recte rostratis calyce sextuplo longioribus linearibus.

*a. Linnæanus.* Pedunculo florifero folium subæquante, fructifero duplo longiori, foliolis stipulisque ovato-lanceolatis acutis, caulibus procumbentibus.—*L. angustissimus*, Linn. *Herb.* *L. diffusus*, Ser. in DC. *Prod.* 2. 213. *L. angustissimus*  $\beta$  *diffusus*, Bot. Gall. 1. 138.

*$\beta$ . Seringianus.* Pedunculo semper folium subæquante, foliolis obovato-oblongis stipulisque ovatis acutis, caulibus ascendentibus.—*L. angustissimus*, Ser. in DC. *Prod.* 2. 213. Bot. Gall. 1. 137.

Fig. 3. *L. angustissimus*.



Root strong, annual. Stems procumbent or ascending, numerous, branched, filiform, covered with long hairs. Leaflets ovate-lanceolate in var. *a*, obovate oblong in  $\beta$ , pointed. Stipules oblique ovate-lanceolate and acute in *a*, ovate, slightly attenuated, and less acute in  $\beta$ . Peduncles about as long as the leaves, in *a* much lengthened when bearing fruit. Bractees lanceolate, usually 3, equalling or shorter than the calyx. Pedicels very short, usually solitary. Calyx segments about as long as their tube, but shorter than the corolla. Flowers yellow, small. Pods five or six times as long as the calyx,

slender, slightly uneven, subterete, glabrous, having a long setaceous straight rostrum springing from the superior suture. Seeds minute, orbicular, compressed, pale.

*Hab.* var. *a.* Cornwall, *Dr. Jacob.* Lanes in Jersey. South coast of Alderney, Jethon and Guernsey. Banks of the Volga. *Ch. de Steven in Sm. Herb.* Var. *β.* Near Hastings, *Mr. Dickson.* Devonshire, *Dr. Beche.* In Jersey.

4. *L. hispidus*, Desf. (*Cat. Jar. Par.* 190.) Vexilli ungue subulato, calycibus ante anthesin rectis, laciniis subulatis tubo suo longioribus petalis brevioribus, leguminibus calyce duplo longioribus rugosis teretibus cum rostro elongato setaceo defracto in apice medio locato, pedunculo folio semper longiore, foliolis obovato-lanceolatis, stipulis semicordatis, caulibus procumbentibus. *DC. Prod.* ii. 212. *Bot. Gall.* 137. *Lois. Fl. Gall.* t. 16.

Fig. 4. *L. hispidus.*



Root strong, fibrous, annual. Stems procumbent, numerous, nearly simple, filiform, covered, as well as the leaves and calyx, with long hairs. Leaflets obovate, with a minute point. Stipules oblique, semicordate. Bractees ovate, often solitary, about as long as the calyx. Peduncles always longer than the leaves. Pedicels very short, solitary, or 2—3 in each head. Calyx segments longer than their tube, but shorter than the corolla. Flowers, yellow, small. Pods about twice as long as the calyx, thick, slightly uneven, terete, glabrous, having a long setaceous rostrum which springs from exactly the middle of the point and is immediately bent down at a right angle. Seeds minute, orbicular, compressed, pale, often with numerous very small dark spots.

*Hab.* Near Penzance, Cornwall, *Mr. H. C. Watson.* Dartmouth, *Mr. Woods.* Guernsey and Alderney, very common.

The much shorter pod of this species is the most convenient distinguishing mark between it and *L. angustissimus*; its habit also is different, and both of them differ remarkably in appearance from the two first species. The great rarity of these

plants in England has no doubt caused them to be misunderstood by most of our native botanists, and I feel great pleasure in being able to give the result of my study of the living plants in the Channel Islands, where they occur in profusion. It appears to me that no two plants can be more truly distinct than this species and its predecessor.

St. John's College, Cambridge, Oct. 27, 1838.

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XXXI.—*On Fishes; containing a notice of one Species new to the British, and of others to the Irish Fauna.* By WILLIAM THOMPSON, Esq., Vice-President of the Natural History Society of Belfast.

COREGONUS CLUPEOIDES, Nillson.? Cunn.—In a letter from the Rev. T. Knox, of Toomavara, dated Jan. 29, 1838, and accompanying a specimen of a fish procured at my request, was the following observation: "We have at last been able to get the little fish mentioned by the fishermen as being found in the Shannon in winter—it was sent from Killaloe. I believe it goes down the river with the eels every winter; it takes no bait." The Rev. C. Mayne of Killaloe—by whose kind attention the specimen was secured—informs me, in reply to some queries, "that it is called a *Cunn* by the fishermen of that place, who state that it is never taken but in the eel-nets about Christmas, when the 'run of eels' is nearly over, and that they never saw more than seven or eight caught in a year, seldom indeed so many." Killaloe, it should perhaps be stated, is not less than eighty miles from the mouth of the Shannon. In the hope of ascertaining the occurrence of this fish at Portumna, about twenty miles higher up the river, I wrote to a correspondent there, at the same time describing the species, and on the 24th of March last received the following reply. "I think it very uncertain whether there is such a fish in the Shannon, but still some old fishermen say there is, and that they are a little smaller than the common herring, but exactly the same shape and colour;" and he again observes—"after making every inquiry, I learn that about half a dozen *white fish* like herrings were got in Lough Derg [a mere expansion of the river Shannon] very near this, about